

Appl. No. 10/574,186
Amdt. dated Sep. 4, 2009
Reply to Office action dated Jun. 12, 2009

Amendments to the Drawings:

The attached sheet of drawings includes changes to Fig. 4. This sheet, which include Figs. 2-5, replaces the previously submitted replacement sheet including Figs. 2-5.

Attachment: One (1) Replacement Sheet

REMARKS

Claims 1-6 and 8-25 are presented herewith. In view of the foregoing amendments and following comments, applicant respectfully requests reconsideration and allowance of all pending claims.

With regard to the objection to the drawing, applicant appreciates the Examiner's comments regarding the informal error in Fig. 4. Specifically, the Office action notes that reference numeral 9 appearing in the upper right side of Fig. 4 should instead be labeled as reference numeral 5. A replacement sheet is submitted herewith that makes this suggested change. Accordingly, the objection to the drawings should be withdrawn.

Turning to the claims, claim 1 is objected to for an informal error. Specifically, the Office action suggests that the phrase "making a nanoporous membrane in thin layer..." should be "making a nanoporous membrane in a thin layer..." Claim 1 is amended above to make this suggested correction, and therefore the objection to claim 1 should be withdrawn.

The Office action further rejects claims 20-25 under 35 U.S.C. 112, second paragraph, as indefinite. More specifically, the Office action indicates that claim 20 fails to provide sufficient antecedent basis for the element "the single-crystal substrate common to numerous pores."

Claims 1-5, 8-10, and 12-25 were rejected under 35 U.S.C. 102(b) as anticipated by U.S. Patent Application Publication No. 2001/0028872 ("Iwasaki") as evidenced by the paper by Nakano et al. ("Nakano"). Applicant traverses this ground of rejection.

The claims are directed to a method for synthesizing electronic components incorporating nanoscale filamentary structures. Claim 1 as amended, as well as claims 2-6 and 8-25 depending directly or indirectly thereon, recites the steps of "depositing a metal catalyst in and on the nanoporous membrane" and growing at least some of the catalyst "epitaxially on said single-crystal zone and on at least a portion of the nanoporous membrane common to numerous pores." These steps enable the orientation of the nanoscale filamentary structures to be controlled relative to one another so that the chirality of the nanotubes is well determined, as noted in paragraphs [0010] and [0072] of the specification as published.

Iwasaki as evidenced by Nakano fails to address the orientation problem, let alone disclose or suggest the solution specified in the claims. Instead, Iwasaki discloses a process in which a metal catalyst is simply deposited into the bottom of the pores. Specifically, in paragraph [0155], Iwasaki states, “Co was electrodeposited thereby forming catalytic fine particles 201 inside the nanoholes...” Accordingly, Iwasaki fails to disclose or suggest “depositing a metal catalyst in and on the nanoporous membrane” and growing at least some of the catalyst “epitaxially on said single-crystal zone and on at least a portion of the nanoporous membrane common to numerous pores,” as specified in the claims. Iwasaki as evidenced by Nakano fails to disclose or suggest each element of claim 1, and therefore claims 1-6 and 8-25 are not anticipated thereby.

Iwasaki further fails to teach the benefit of the presently claimed process of generating nanoscale filamentary structures having well-controlled orientations. Instead, as evidenced by Figs. 18-20 of Iwasaki, the nanoscale filamentary structures are inclined at various angles to one another, and therefore clearly are not well controlled. Because Iwasaki as evidenced by Nakano fails to address the problem of non-uniformly oriented structures, let alone disclose or suggest the solution specified in the claims, the claims are not obvious over the cited prior art.

Claim 11 was rejected under 35 U.S.C. 103(a) as obvious over Iwasaki in view of International Publication No. WO02/092506 (“Shaffer”), while claim 6 was rejected under 35 U.S.C. 103(a) as obvious over Iwasaki in view of Chinese Patent No. 1,278,024 (“Du”). The secondary references to Shaffer and Du fail to supply the deficiencies of Iwasaki noted above, and therefore these grounds of rejection must be withdrawn.

CONCLUSION

It is submitted that the present application is in good and proper form for allowance. A favorable action on the part of the Examiner is respectfully solicited. If, in the opinion of the Examiner, a telephone conference would expedite prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Appl. No. 10/574,186
Amdt. dated Sep. 4, 2009
Reply to Office action dated Jun. 12, 2009

The Patent Office is hereby authorized to credit any overpayment or charge any deficiency in the fees filed, asserted to be filed, or which should have been filed herewith to our Deposit Account No. 50-3629.

Dated: September 4, 2009

Respectfully submitted,

By: ____/brent e matthias/
Brent E. Matthias
Registration No.: 41,974
MILLER MATTHIAS & HULL
One North Franklin Street
Suite 2350
Chicago, Illinois 60606
(312) 977-9902
Attorney for Applicant